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ABSTRACT

The effects of situational influences and sex differences in the reward allocation behavior of children was investigated in four studies. Experiment 1 focused on the distribution of rewards to workers presented as being in either a unit or non-unit relationship with each other. The second experiment determined whether a similar pattern of sex differences in allocation behavior would occur under conditions in which the child was led to believe that he or she was more or less successful than an actual competitor. Experiment 3 and 4, in addition to assessing sex differences, explored the role of peer models on children's reward allocation behavior. Results indicated that: (1) boys are more self-serving than girls in their division of rewards under competitive instructional set conditions wherein the child-allocator serves as a co-recipient; (2) allocation behavior is influenced by the pattern of distribution modeled by a same-sex peer; and (3) allocation behavior is affected by informing the children that the competition outcome is due to differences in worker ability or a function of chance, but only for the "winning" children.
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Reward Allocation Behavior

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Situational Influences and Sex Differences in Children's

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Investigators have become increasingly concerned with the developing child's notions of distributive justice, deservedness, and fairness. A related issue concerns the circumstances under which boys and girls may differ in these important judgments. My contribution to this symposium will consist of a summary and integration of the findings of four recent investigations of children's reward allocation behavior. Each of these studies involved an allocation procedure in which 10- to 12-year-old children were instructed to distribute rewards between themselves and a fictitious coworker or between two fictitious coworkers who were presented as differing in their relative productivity on a simple task. While each focused on a particular situational influence on children's reward distribution, a consistent sex difference was recorded throughout.

Experiment I

The first experiment (Barnett & Andrews, 1977), which I will discuss in greater detail than the others, focused on the child's distribution of rewards to workers presented as being in either a unit or non-unit relationship with one another. Lerner (1974, 1975; Lerner, Miller, & Holmes, 1976) suggests that when individuals perceive potential recipients as being in a team (i.e., unit) relationship with one another, they will tend to minimize the differences in relative inputs and allocate resources approximately equally; when the recipients are perceived as being in a non-team (i.e., non-unit) relationship, an allocation of rewards proportional to their relative inputs will be judged as appropriate. A study reported by Lerner

(1974, Exp. 3) in which first grade boys and girls were asked to divide rewards between themselves and a coworker under team and non-team instructional sets supports this notion. The results of two other investigations (Exps. 1 and 2) reported in the same paper indicate that children allocate rewards in a similar manner when serving as impartial supervisors or as corecipients in their distribution of rewards.

The results of Lerner's (1974) investigations suggest that boys and girls learn the appropriate rule of resource distribution for team and non-team relationships at an early age and apply these norms consistently across situations. The first study which I will present explored the prediction that under a competitive structure, a very common yet largely unexamined instance of a non-unit relationship, the allocation behavior of boys and girls may show important differences.

Although some contradictory evidence has been reported (Coon, Lane, & Lichtman, 1974; Lane & Coon, 1972; Lerner, 1974), studies in which the individual has been selected to distribute rewards between him/herself and others have generally indicated that males have a greater preference for equity than females when equity and equality conflict (Bond & Vinacke, 1961; Leventhal, 1976; Leventhal & Anderson, 1970; Leventhal & Lane, 1970; Uesugi & Vinacke, 1963; Walster & Walster, 1975; Leventhal, Note 1). Males typically appear to be assertive and exploitative in distributing rewards, choosing unequal allocations which favor themselves. On the other hand, females appear to be accommodative, affiliative, and concerned with others' feelings and reflect these concerns in their distribution of resources to others.

Sex differences in allocation behavior may be expected to be most prevalent in a situation wherein a conflict between one's self-interest and a concern for others is salient. A competitive encounter in which the individual

functions as a corecipient of his or her own allocation would appear to be one such situation. Under these circumstances males who are characterized as being more productive than a fellow competitor are likely to allocate rewards equitably and in proportion to each worker's relative productivity. If the male's performance is characterized as being inferior to a competitor, however, he may be less eager to have his failure reflected in his reward allocation (Walster & Walster, 1975) and therefore may distribute the rewards more equally. In contrast when a "winning" female is placed in the position of the allocator of rewards she may be more likely to approach equality in her distribution, using the rewards to support and comfort the less productive, losing competitor. When the female perceives her input as being less than that of a competitor, she is expected to demonstrate her concern for fairness and the other individual by substantially reducing her share of the rewards.

While a competitive encounter is conducive to conflict between one's self-interest and a concern for others (Barnett, 1975; Barnett & Bryan, 1974; Barnett, Matthews, & Corbin, in press), a cooperative team relationship between workers may minimize such conflict and, subsequently, may serve to attenuate any sex differences in allocation behavior. Similarly when an individual is designated as an impartial supervisor and privately allocates rewards between others, his or her personal involvement in the outcome of the distribution is substantially reduced. Therefore, no significant sex differences are expected in the allocation behavior of boys and girls under these conditions.

These predictions were tested in the following manner. A total of 136 children, 72 males and 64 females from the fifth and sixth grades in two elementary schools in Manhattan, Kansas, received parental permission to participate in a study of "social judgment." The experimental sessions were conducted in the children's classrooms, utilizing a group administration procedure similar to Coon, Lane, and Lichtman's (1974). The instructions

were presented to the children via videotape. At the beginning of the session, each child was given an envelope containing a letter and 20 small gummed stars to be used in the allocation task. The children were asked to imagine that each star was worth one small prize.

Each child was asked to allocate the rewards to two hypothetical workers who were described as differing in their productivity on a simple puzzle board task, attaching either 15 or 5 puzzle stickers in the time allotted. Eight experimental conditions were established in a 2 (Instructional Set) X 4 (Recipient Condition) factorial design. For half of the children their letters described the workers as members of a team, while for the other half the workers were characterized as in a contest against one another. Within the cooperative and competitive instructional set conditions, each child was assigned to one of four recipient groups. In two of these groups the child served as a supervisor and divided the rewards between either two boys or two girls characterized as being about the same age as the child. In the other two (corecipient) groups the child was asked to pretend that he/she was one of the workers and to distribute the rewards between him/herself and another individual of the same age and sex. In the latter two groups the child was presented as being either the more or less productive worker. The dependent measure was the number of rewards the boys and girls chose to allocate to the two recipients under the eight experimental conditions.

In order to test the specific hypotheses of the first investigation, a series of planned orthogonal comparisons, determined prior to the start of the investigation, was performed on the number of prize stars allocated to the more productive worker in each condition. The girls were found to allocate more rewards to a more productive competitor ($\bar{M} = 13.34$) than to a more productive teammate ($\bar{M} = 11.94$), $F(1, 120) = 5.63$, $p < .025$. A similar effect was also found for the boys ($\bar{M} = 13.42$ and 12.03 , respec-

tively), $F(1, 120) = 6.18, p < .025$.

While the boys and girls were thus aware of the appropriate norms to be utilized in the unit and non-unit relationships, a significant interaction of the sex of the allocator and the workers' relative productivity was found in the competition conditions in which the child served as a corecipient, $F(1, 120) = 6.67, p < .025$. Whereas the boys' allocations approximated proportionality to the number of products completed when they were described as the more productive competitor ($M = 13.89$), they gave significantly fewer rewards to a hypothetical competitor presented as being more productive than themselves ($M = 11.56$), $F(1, 120) = 4.34, p < .05$. On the other hand, there was a tendency for the girls to award fewer prizes to themselves when described as the more productive competitor ($M = 12.50$) than they awarded to a same-sex competitor characterized as more productive than themselves ($M = 14.38$), $F(1, 120) = 2.81, p < .10$. Under conditions of reduced conflict between self-interest and a concern for the other individual--serving in the role of a cooperating teammate or an impartial supervisor--no sex differences in allocation behavior were found.

The pattern of sex differences found in this investigation are particularly intriguing in that the children were asked only to imagine themselves in a competitive encounter and to allocate rewards between themselves and a fictitious same-sex other. While in reality there was no other individual's feelings to be concerned with and no self-interest to maintain, the girls and boys in the corecipient competition conditions demonstrated distinctly different patterns of allocations reflecting these respective concerns.

Experiment II

One purpose of the second investigation (Barnett, Andrews, & Howard, in press) was to determine whether a similar pattern of sex differences

in allocation behavior would be found under conditions in which the child is led to believe that he or she has been more or less successful than an actual competitor. In addition, this study examined whether describing the outcome of a competition as being due to differences in the workers' ability or luck influences the allocation behavior of winning and losing children. Children's generosity to needy others has been found to be influenced by the extent to which they perceive their own and the potential recipient's claim to the rewards to be fair, legitimate, and deserved (Barnett, 1975; Long & Lerner, 1974). In a competition wherein the outcome is determined by chance, a distribution of rewards which deviates markedly from equality may be perceived by the child as unfair and undeserved. In contrast, presenting the outcome of a competition as being due to differences in the workers' ability is expected to enhance the legitimacy of the outcome and result in a distribution of rewards more proportional to the competitors' relative performance levels.

A total of 108 children, 54 males and 54 females from the fifth and sixth grades in two elementary schools, participated in this study. The children were brought individually to a small room located in the school. Each child was informed that he or she would be working on a figure-matching task against a (fictitious) same-sex peer and that they would be competing for prize chips, each redeemable for a small prize. For one third of the children, the task was presented as requiring skill and differences in performance were repeatedly attributed to differences in the workers' ability. For one third of the children, the task was described as requiring luck; for the remaining third, the nature of the task was left unspecified. In each of the three Task Structure conditions a computer printout presented to the child at the conclusion of the contest indicated that he/she had correctly matched either

more (self 14/other 6) or less (self 6/other 14) figures than the competitor. After being informed of the outcome of the contest, the child was asked to distribute, in private, 20 prize chips between him/herself and the more or less successful opponent.

As in the corecipient competition conditions of Experiment I, a significant interaction of the sex of the allocator and the workers' outcome was found, $F(1, 96) = 12.18, p < .001$. A Newman-Keuls analysis again revealed that winning boys took significantly more prize chips for themselves ($M = 12.67$) than losing boys awarded to a more successful competitor ($M = 10.89$); in contrast, winning girls took approximately the same number of rewards ($M = 11.67$) as they allocated to an opponent characterized as more successful than themselves ($M = 12.00$). A significant Task Structure $\times$ Outcome interaction was also found, $F(2, 96) = 3.15, p < .05$. A Newman-Keuls analysis showed that while children allocated significantly more prize chips to themselves when they won under Skill ($M = 13.17$) than under Luck ($M = 11.56$) or Ambiguous ($M = 11.78$) conditions, no differences were found across Task Structure conditions for losing allocators ($M = 11.39, 11.39, \text{ and } 11.56$, respectively).

The results of the second study support the notion that 10- to 12-year-old boys are more exploitative and self-serving than girls in distributing rewards, particularly after a competitive encounter wherein the conflict between self-interest and a concern for the other individual is salient. These allocation data also suggest that successful competitors may be more sensitive to the legitimacy of their claim to rewards than are less fortunate competitors. Perhaps the "thrill of victory" serves to reduce the self-concern originally generated by a competitive encounter (Barnett & Bryan, 1974) and enables the individual to be more aware of other situational and interpersonal factors than does an unfavorable outcome.

Experiments III and IV

The final two studies (Barnett, Howard, & Andrews, in press) which I will describe today, in addition to assessing sex differences, explored the role of peer-models on children's reward allocation behavior. Studies of children's altruism and sharing (Bryan, 1972) indicate that the expression of charitable or greedy behaviors toward other individuals is influenced by the judgments and behaviors modeled by peers. Rather than merely allocating rewards in accordance with a particular norm of distributive justice (e.g., equality or equity), therefore, the fifth- and sixth-grade children in Experiments III and IV were expected to imitate a competitor's prior pattern of reward allocation. While the children were generally expected to reproduce another child's distribution pattern, it was again predicted that the boys would take more rewards for themselves than the girls.

The subjects in Experiment III were 96 fifth and sixth graders (48 males, 48 females); in Experiment IV the subjects were 44 sixth graders (22 males, 22 females). All of the children were Caucasian and from middle-class backgrounds.

Children in Experiment III were led to believe that they would be competing in two rounds of a figure-matching task and that they would be receiving rewards for their performance after each round. Furthermore, the children were led to believe that they had won the second round of the contest and were to distribute rewards between themselves and a (fictitious) same-sex competitor who (1) had won or lost the first round of the contest and (2) had divided the rewards after the first round either equally (Equality conditions) or proportional to the competitors' relative outcomes (Equity conditions). Experiment IV was identical to the prior study with the exception that the child's second-round distribution of rewards was made between him/herself and a new competitor. Only the conditions in which the child

lost the first round were replicated in Experiment IV.

As predicted, the children's distribution of rewards after the second round of the competition generally approximated that of the competitor. Specifically, the children divided the rewards more proportional to outcomes (i.e., took more rewards for themselves) in the Equity than in the Equality conditions in both Experiment III ($F(1, 88) = 96.32, p < .001$) and Experiment IV ($F(1, 40) = 37.44, p < .001$). In addition, the boys awarded themselves more rewards than the girls in both investigations ($F(1, 88) = 9.12, p < .005$ and $F(1, 40) = 2.93, p < .10$, respectively).

The results of the last two studies indicate that children's allocation behavior is markedly influenced by a competitor's prior distribution of rewards, even when the need or opportunity to directly reciprocate is eliminated. Rather than distributing rewards in accordance with one particular norm, the children's general adherence to either the norm of equality or equity was affected by the allocation behavior modeled by the fictitious peer. The pattern of sex-linked deviations from "exact" imitation provides additional support for the notion that boys are more self-serving than girls in distributing rewards following a competitive encounter.

General Discussion

The results of the four studies presented indicate that while children's reward allocation behavior is influenced by various situational factors, boys are more self-serving than girls in their division of rewards under competitive instructional set conditions wherein the child-allocator serves as a corecipient. A brief summary of the specific findings will be offered, followed by some speculations concerning the antecedents of sex differences in children's distribution decisions.

The results of Experiment I demonstrated that 10- to 12-year-old children are aware of the appropriate norms to be utilized in unit and non-unit relationships, generally allocating more rewards to a more productive competitor than a more productive teammate. A sex difference was found only under conditions in which the allocator was characterized as a competitor and as having a vested interest in the outcome of the allocation. The distribution patterns of boys and girls did not differ markedly when the allocators were described as members of a team or when serving as impartial supervisors.

In Experiment II informing the child that the outcome in competition was due to differences in the workers' ability or merely a function of chance was found to affect allocation behavior, but only for winners (who took more rewards for themselves under skill than luck conditions). It was suggested that notions of deservedness and fairness may have been more salient to successful competitors than to "losers", who may have focused momentarily on their own misfortune and were subsequently less sensitive to the task structure when making their distribution decisions. As in Experiment I, boys and girls demonstrated contrasting reward allocation patterns following success or failure in the contest.

The results of the final two studies suggest that the 10- to 12-year-old child's "rule" for allocating rewards is not rigidly established, but is influenced by the pattern of distribution modeled by a (same-sex) peer. Importantly, modeling was found to have a strong effect (in Experiment IV) even when the child's second-round allocation was with a new competitor and, thus, could not be accounted for merely by a desire to reciprocate or "get back at" the model. Although modeling was found to influence the children's allocation behavior following competition, the deviations from imitation were sex-linked and consistent with previous findings.

Since the studies presented sought to demonstrate rather than explain sex differences in children's reward allocation behavior, any discussion of causes or antecedents must, of course, be largely speculative in nature. Perhaps the more reasonable explanation for why boys and girls differ in their distribution of resources to self and other following competition is to be found in early socialization patterns. As several researchers (e.g., Walster & Walster, 1975; Leventhal, Note 1) have suggested, boys are more likely than girls to be encouraged to be assertive and exploitative--perhaps especially so in competitive situations--selecting divisions of rewards which highlight their victories and minimize their failures. Girls, on the other hand, are more likely to be encouraged to be affiliative and accommodative and reflect these concerns in their distribution of resources to others, even competitors. In a relevant investigation involving a first grade sample (Barnett, Matthews, & Howard, in press), competitiveness (as determined by teacher's ratings) and a sensitivity to the feelings of others (as assessed by the Feshbach & Roe (1968) empathy measure) were found to be negatively associated for boys, yet unrelated for girls. Competitiveness in boys (or situations which elicit competitiveness) may yield an intense concern-for-self at the expense of concern-for-the-other; for girls, in contrast, competitiveness or competition may not be intimately linked to a suppression of empathy or a concern-for-the-other, and therefore may result in more benevolent winners and more gracious (and generous) losers.

A final and related issue involves the differential attributions which boys and girls may make during and following a competitive interaction. A recent series of investigations (see Rosenfield & Stephan, 1978) have demonstrated that males make more internal attributions for successes and more external attributions for failures than do their female counterparts,

especially on ego-involving "masculine" tasks. Perhaps, even in 10- to 12-year-old boys, such "egotistical" attributions are elicited in a competitive situation and are reinforced (in winners) and defended (in losers) by self-serving, ego-protecting distribution of resources.

Reference Note

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